



Arizona Gas Storage

Eloy, Arizona

April 25, 2017

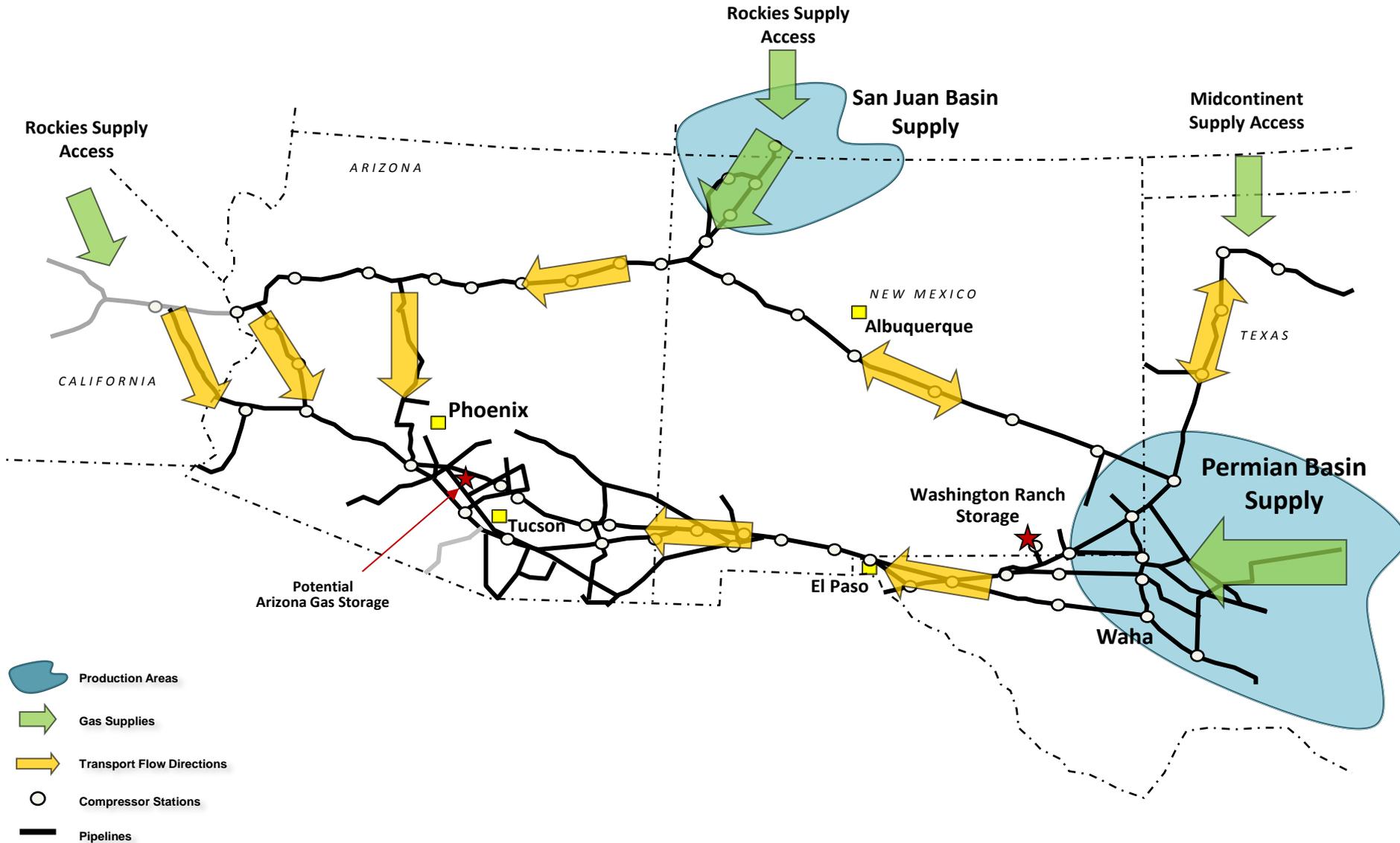
Arizona Gas Storage

Project Description

- Initial four cavern design with a working inventory of 1 Bcf per cavern, 4 Bcf total
 - 400 MMcf/d withdrawal deliverability
 - 168-183 MMcf/d injection capability
- Two laterals connecting storage to EPNG
 - Optimize delivery to end users on the EPNG System
- ***Projects begin and end with safety. Kinder Morgan will:***
 - Comply with all state and federal regulations
 - Adhere to American Petroleum Institute (API) design and operation of cavern storage
 - Install multiple detection and shutdown devices
 - Select the best available control technology

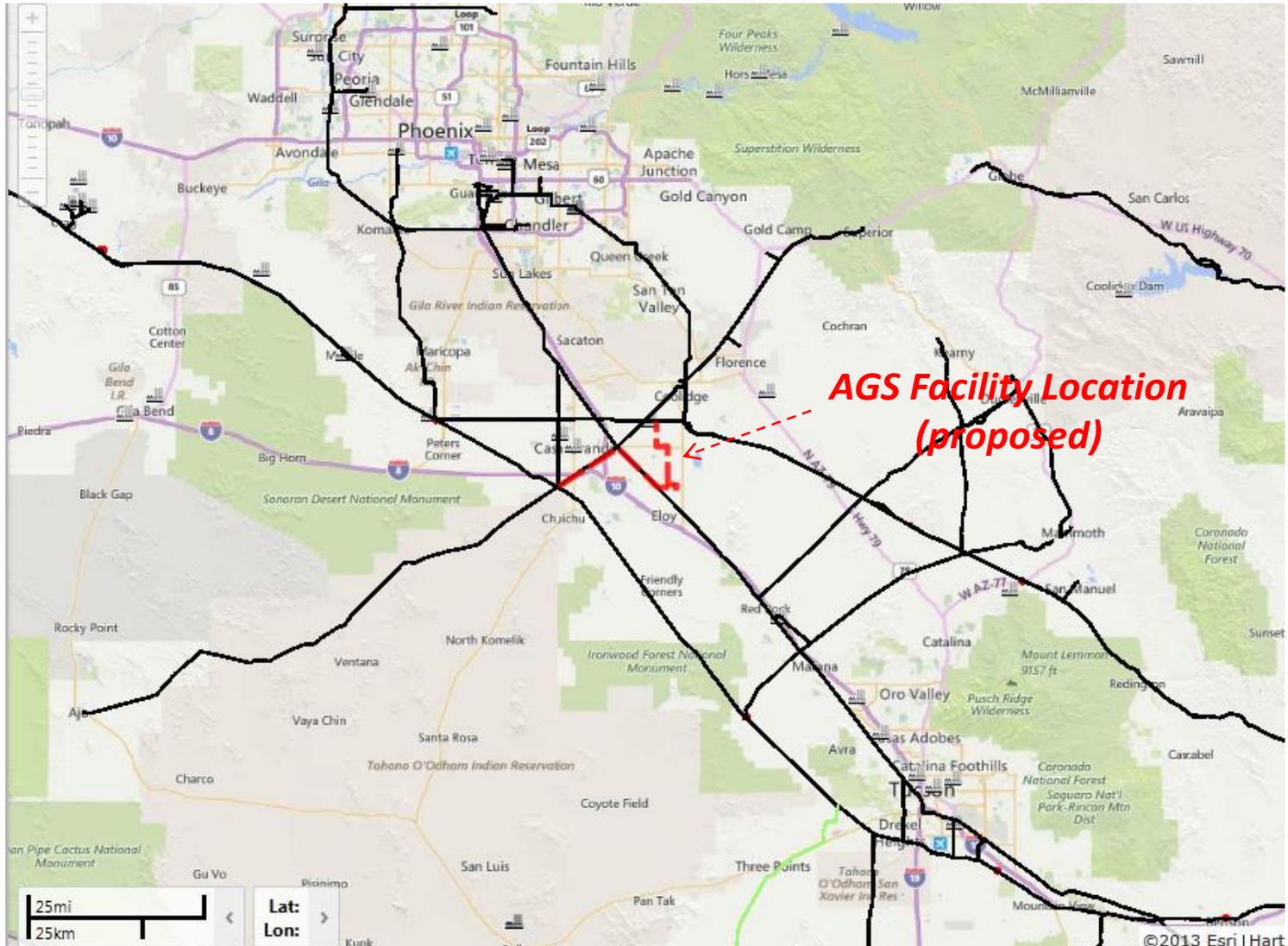
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Map



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Project Location

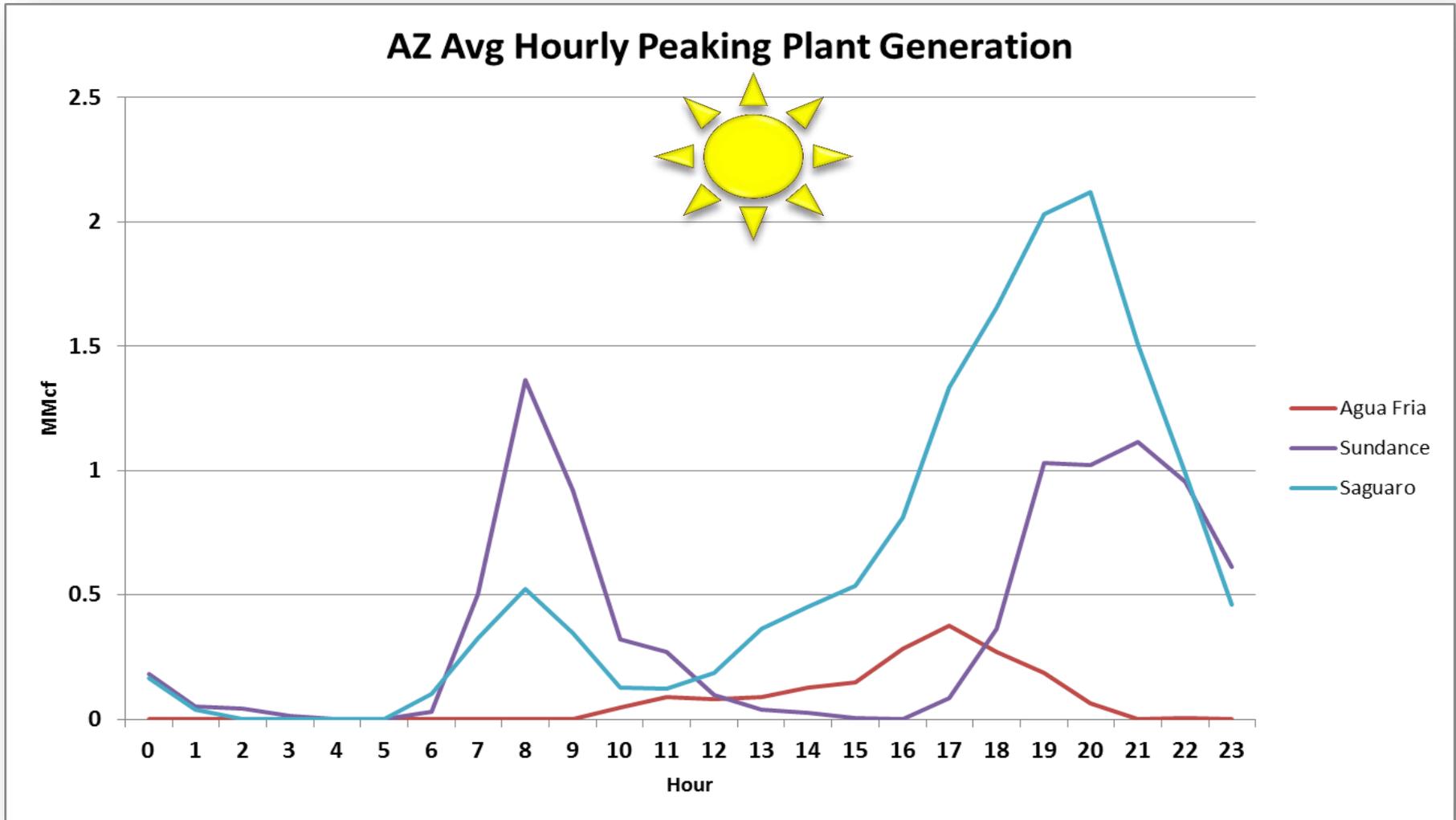


Benefits for Arizona Customers

- **Market area storage, in a unique location, with connectivity to delivery meters in Phoenix/Tucson area**
 - Provides **supply security** during interruptions in the supply basin
- Storage, when combined with capacity from EPNG, will allow no-notice service from storage to delivery meters
 - Incremental capacity from storage to meters via new AGS no-notice transport service
 - New No-notice transportation service provides:
 - Additional firm capacity to available meters
 - Adds additional capacity to EPNG Market Area
 - Potential flexibility up to contracted quantities on both EPNG and AGS meter capacity
 - Provides high-speed response to changing system loads
 - Allows for customer flexibility to meet load volatility

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Load Volatility



Agua Fria, Sundance, and Saguaro are combustion turbine peaking plants in Arizona served off EPNG. Data is based on EPNG metered volumes to these plants.

Black start Issues

Pipeline supply issues in black start event

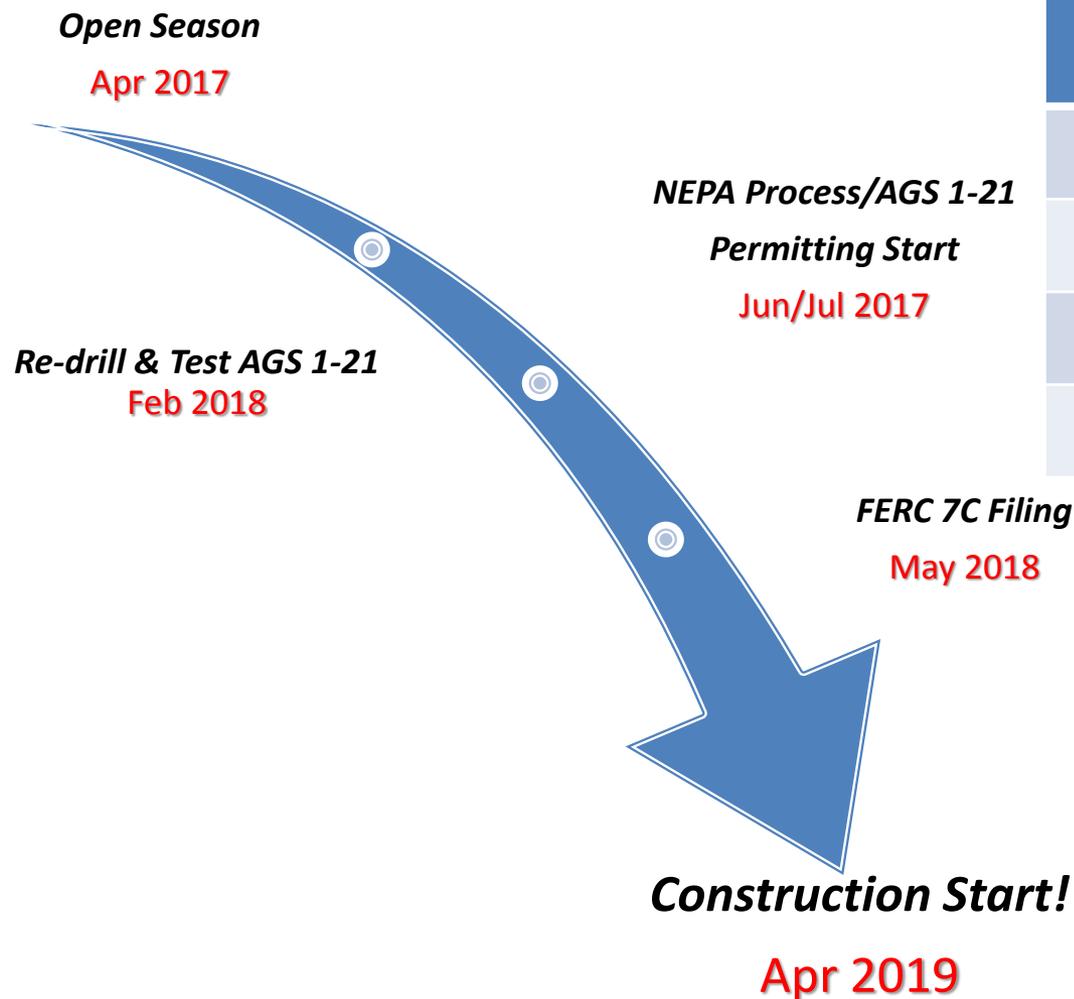
- Supply must come from distant basins
 - ~426 miles of pipe and compression from San Juan Basin to Phoenix
 - ~514 miles of pipe and compression from Permian Basin to Phoenix
- Exposed to supply basin reliability issues
- Supply must be nominated and scheduled
 - Limited to nomination cycles
 - Must be confirmed by producer and pipe

Black start with Arizona Gas Storage (AGS)

- Supply located within 40 miles of Phoenix
 - Within 12 miles of nearest power plant
 - **Nearly instantaneous supply up to contract limits**
- AGS free flows to delivery locations
- Supply provided via No Notice Service (NNS)
 - Timing not subject to NAESB timeline
 - AGS and EPNG leased capacity operated by one Gas Control

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Timeline Development



Cavern	In-Service Date*
#1	Nov 2020
#2	Feb 2022
#3	Aug 2023
#4	Dec 2024